NEWS

APR 9 194

...ed crane sets first rotor in Hiwassee's outdoor power plant.—see p. 3.

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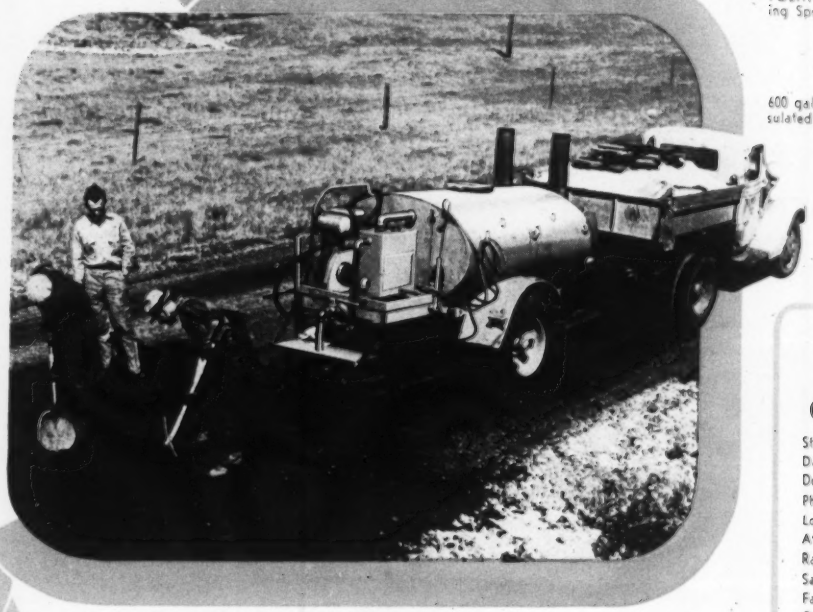
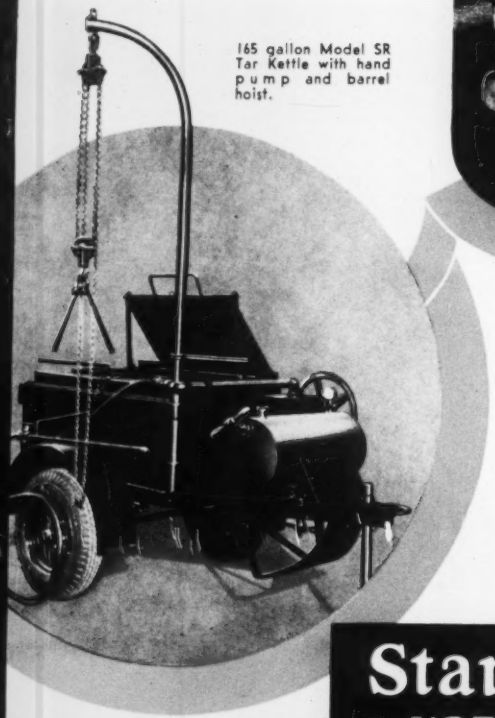


600 gallon Model SJA... sulated with 50 G.P.M. ...



165 gallon Model SR Tar Kettle with hand pump and barrel hoist.

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NORTH KANSAS CITY, MO., U.S.A.

ENGINEERING NEWS-RECORD

NEWS

Volume 124 APRIL 4, 1940 Number 14

NOTES ON THE NEWS

Quick Surveys of Construction Events

▶ Undaunted by the court decision voiding collection of tolls on its Hutchison River Parkway, Westchester County (N. Y.) went to the legislature and secured passage of a new bill that not only permits tolls on this parkway but on Sawmill River Parkway as well. Furthermore, the toll revenues can be used for new parkways and for repair work.

▶ The U. S. Justice Department brought its anti-trust indictment activities in the field of collusive bidding and monopolistic labor practices to Broadway last week with charges against the all-powerful Electrical Workers Local No. 3, whose activities have gained it nation-wide notoriety.

▶ More federal money for public works is again in sight. The week saw the Senate increase the flood control and Panama Canal appropriations voted by the House. Several bills looking toward lending of federal funds for local public works, a la PWA, but without grants, are also being considered; passage is said to hinge on the trend of business conditions.

▶ The Master Shoe Repair and Valet Ass'n of Illinois is protesting against a WPA project in Chicago which repairs 100,000 pairs of shoes annually for children of the elementary schools. The association argues that "WPA does not use regular cobblers and the repair jobs are of poor quality." Sign Writers Local No. 572, Omaha, Neb., is protesting against the practice of Omaha street signs being manufactured by NYA, objecting to "Private work going to a governmental agency." The local states: "Taking business away from Omaha firms will not relieve unemployment or put young men to work." To contractors, weary of a long battle with WPA, these items have a familiar ring.

J. W. COWPER HONORED BY LONG-TIME EMPLOYEES

LAST WEEK 33 straight time employees of The John W. Cowper Co., Inc., Buffalo, N. Y. honored J. W. Cowper, the company's president, for his 25 years as head of the corporation. Of those present besides Cowper, one had served the corporation for 25 years, 16 for more than 20 years, and 10 for more than 15 years.

During its 25 years of existence, the corporation has executed contracts embracing buildings, heavy foundations and bridges totaling $73,000,000.

Floods Do Little Damage

Flood news of the week originated in such widely distant areas as northern California and eastern Pennsylvania, but in neither place did damage extend beyond extensive inundation and blocked highways. Tributaries of the Sacramento River overflowed lowlands where levees had not been repaired after the major flood of a month ago. In Pennsylvania the Susquehanna River reached its highest stage at Wilkes-Barre, 31.6, which compares with the 33.07 record stage of 1936. Stages in general were about 2 ft. under the 1936 crests.

Salary Study Made For Arizona Engineers

Am. Soc. C. E. acts on controversial question of pay for highway engineers

A salary and classification study for engineers in the employ of the Arizona State Highway Department, undertaken by the Am. Soc. C. E. at the request of its Arizona Section, was completed and transmitted to the highway commission on March 29. The survey was made by Allen P. Richmond, assistant to the secretary of the society who was sent to Phoenix late in February for that purpose.

Richmond's study was the outcome of a long controversy over salaries in the Arizona highway department that began with a salary reduction made in June, 1939. After dissatisfaction over the cuts and reported inequalities had

(*Continued on p. 2*)

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Fast Tunneling On Chicago Subways

Unusually fast time is being made by the Healy Subway Const. Co. in driving under compressed air the west shield for the State St. subway tunnel in Chicago. For the 24 hours ending at midnight, March 29, the shield advanced 47 ft. This followed three successive days of 45 ft., 41 ft., and 40 ft. The shield is 25 ft. 3½ in. in diameter; the primary lining is fabricated steel segments, six sections and a key per ring, 33 in. wide. All of the muck, typical Chicago blue clay, is taken into the shield, loaded on cars and sent out through a special lock into the Chicago Freight Tunnel system, and the freight operating company disposes of the material by dumping it into the lake.

Lou Salmon is in charge of the work for Healy; Ralph Burke is chief engineer of the subway commission; J. W. Grimm is resident engineer on State St., and R. A. Bonnel resident engineer on Dearborn St.

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Salaries Studied

(*Continued from p. 1*)

resulted in an attempt to organize the engineering employees into an AFL union (*ENR*, Nov. 16, 1939, p. 659; Nov. 30, p. 723) the Arizona Section took up the matter and in January of this year called upon the society to take definite action to eliminate the inequalities of pay and classification or else to acknowledge its inability to deal with such matters (*ENR*, Feb. 1, p. 147).

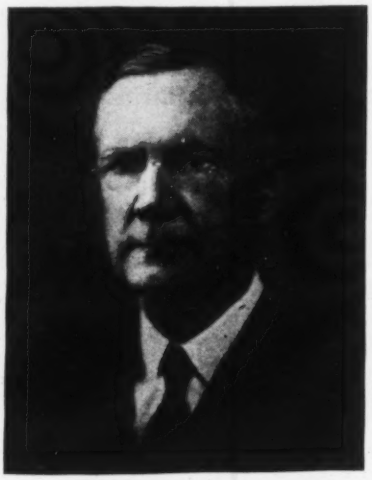
Salary scale drafted

In his report to the highway commission, Richmond set up six professional grades and four subprofessional grades based on similar gradings in the California highway department, the federal civil service, and those of the Am. Soc. C. E. and the American Association of Engineers. Subsequently, with the aid of the department heads of the highway department each employee was tabulated against the appropriate grade according to his job without regard to his present title or pay. In the final stage of the study, appropriate rates of pay for each class were prepared, based on those used in the pay and classification scales used for the first stage of the work. Salaries range from $80 to $105 per month for the lowest subprofessional group to $255 for a small special group of subprofessional men, and from $165 to $210 for the lowest professional grade to $550 to $700 for the chief engineer of the department.

In making his report, Richmond recommended to the commission that the classifications and pay scales be adopted and that every employee be assigned to his appropriate grade and paid within the recommended range for that grade. Raymond A. Hill, former director of the society, who has been active in representing the society in the current controversy, participated in the presentation of the report to the commission. The commission is now considering the report.

W. E. Spear Dies; Chief Of New York Water Board

Walter E. Spear, chief engineer of the Board of Water Supply of the city of New York, died in New York City on March 29 after a brief illness. He had given 30 years' service to the development of the city's water supply, rising through the positions of division and department engineer to that of acting chief engineer when Thaddeus Merriman retired in 1933, and to chief engineer three years later.



WALTER E. SPEAR

Spear was born in Lawrence, Mass., in 1874, and educated at Massachusetts Institute of Technology. He entered the field of hydraulic engineering with the Essex Co. at Lawrence under the eminent hydraulic engineer, Hiram F. Mills. Later he was assistant engineer of the Boston Metropolitan Water Board on the construction of the Wachusett reservoir, and principal assistant to John E. Freeman.

In 1903 Spear was engaged by the Burr-Hering-Freeman commission to investigate groundwater sources on Long Island. His summary of a season's intensive work in this field formed a substantial part of the commission's report on possible new sources of supply for the city. During the following year he studied European groundwater supplies and upon return to this country he continued the study of the Long Island sources for the newly formed Board of Water Supply. His two-volume report to the board contains the most detailed and complete information with regard to Long Island groundwater that has been published.

During 1908-09 Spear served in the city's operating organization as chief engineer of the Brooklyn Water Department, returning to the board to take charge of the preliminary work and subsequently the construction of the Catskill Aqueduct city tunnel. During the World War he was officer of camp utilities and construction quartermaster at Camp Upton.

In 1920, as representative of Ford, Bacon & Davis, of New York, Spear headed a commission of engineers to make investigations and recommendations for a water supply and sewerage systems for the cities of Athens and Piraeus, Greece, work that was carried out substantially in accordance with his recommendations.

When in 1921 the need for additional water for New York City became evident. Spear was recalled to the Board of Water Supply to take charge of the studies as department engineer in charge of designs and the administration of the headquarters office during the construction of City Tunnel No. 2. He remained with the board continuously from that date to the time of his death.

Walter Spear was an engineer of great ability, integrity and judgment, endowed with a rare combination of talent, a meticulous attention to details and broad vision for the large undertakings of which he was the head. His report on the water supply resources of Long Island has set a standard for engineering investigation. He also had a high sense of duty, and this led him to tax himself beyond his strength when earliest possible completion of the Delaware water supply became imperative.

• • •

Engineers Recommend $13,000,000 Dam in Georgia

Construction of a $13,000,000 dam on the Etowah River near Rome, Ga. has been recommended to Congress by the U. S. Engineers. Known as the Allatoona reservoir project, the work would be for flood control, navigation and power development.

Rail Problems Discussed At Washington Meeting

A wide variety of viewpoints on the ills of the railroads, agreeing only that lack of money is the prime trouble, were expressed at a recent symposium before the Washington chapter of the Am. Soc. C. E. The discussion centered around a debate between William J. Wilgus, former vice president and chief engineer of the New York Central, and M. J. Gormley, representing the Association of American Railroads, on nationalization of the railways.

Wilgus' thesis is that the railroads are in bad shape technically because of deferred maintenance and must spend about $5,000,000,000 to get back into shape. Low earnings make it impossible to raise this capital; rates are already too high in relation to commodity prices; government subsidies would raise political objections; and Wilgus rejected as unethical reduction of the capital structure through bankruptcy.

Wilgus proposed as a solution that a federal railway authority exchange outstainding railroad securities (at perhaps fifty per cent above present market value) for low interest government bonds totalling about $15,000,000,000. Present earnings would support, at low interest rates, about $20,000,000,000 capitalization, the difference providing the needed $5,000,000,000. Economies resulting from the improved physical plant would permit rate reductions.

Opposing this viewpoint, Gormley agreed that the rails are in a difficult financial position, but he rejected government ownership as leading to socialism.

The crux of most railroad troubles, Gormley maintained, is government subsidization of competing forms of transport. If the government would stop building new waterways and highways and would collect tolls on existing waterways, enough traffic would return to the rails to put them in good financial shape and, through lower unit costs, to permit rate reductions.

In discussion, Cassius Clay, assistant general counsel of RFC, questioned Col. Wilgus' rejection of bankruptcy. Railroad troubles. Clay suggested, reflect technologic and other changes in the transport needs of the country. It may be, he said, that the country no longer needs so many railways. Bankruptcy recognizes obsolence and is the normal way out of the difficulty. Any other course would simply mean that the government would take the investors' losses.

ASSEMBLING FIRST GENERATING UNIT FOR TVA'S HIWASSEE DAM

THE ROTOR for generating unit No. 1 at TVA's $18,000,000 Hiwassee Dam on the Hiwassee River in southwestern North Carolina is here shown being installed. The initial installation is to consist of one 57,600-kw. unit. The generator will be ready for operation about April 10.

Closure of Hiwassee Dam which is 1,265 ft. long and 307.5 ft. high, occurred Feb. 8. Built with an overflow spillway, Hiwassee Dam is said to be the highest structure of its type in the world. Shasta Dam, however, will deprive it of this record as it's spillway will be over 500 ft. high.

For the project, C. E. Blee is project engineer; J. E. Walters, superintendent, and Olaf Laurguard, construction engineer.

Spend-Lend Idea Not Considered Dead

Congress to revive idea with continued low business indices

The spend-lend idea embodied in last year's abortive bill is not dead but sleeping. As long as business activity remains at reasonably high levels, its sleep will be undisturbed. But if the indices continue to drop, a new effort will be made at utilizing the federal credit to siphon private money into local projects.

Ideas of the spenders are embodied in several alternative plans, but the "official" and most far-reaching version is the bill introduced last week by Senator Charles O. Andrews of Florida.

The Andrews bill could provide a billion or more dollars worth of works without, according to its author, effecting the debt limit. It would appropriate $300,000,000 to be loaned to public bodies by the Commissioner of Public Works for any purpose which, in his opinion, will provide new employment. Loans could also be made to non-profit bodies for health, educational and recreational facilities or "facilities for the handling and storage of farm products."

The bonds obtained by the commissioner would be guaranteed as to principal and interest by the federal government and immediately resold to the public, the proceeds becoming available for new loans. The original appropriation thus becomes a revolving fund with a high r.p.m.

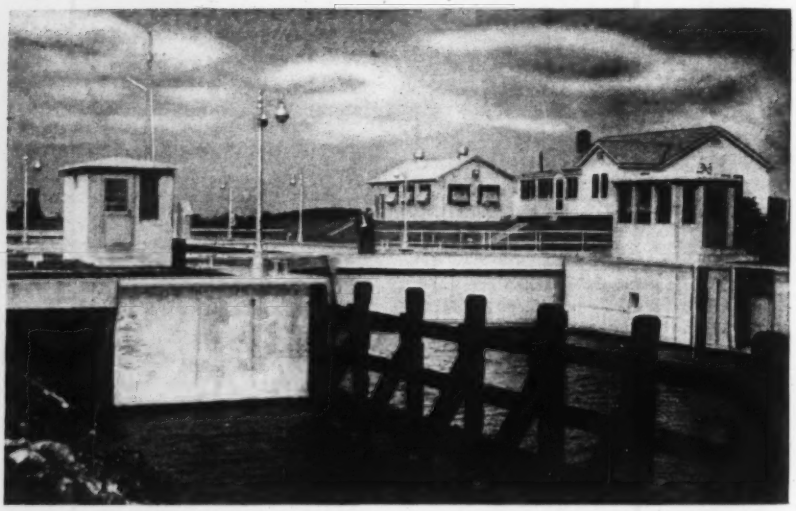
The term of the loans could be as long as the useful life of the project except that it could not exceed fifty years. Interest rate is to be set by the commissioner and need only be large enough to pay the interest on the federally-guaranteed bonds plus a small percentage to cover expected defaults. Thus, although no subsidy is provided, the plan is expected to be attractive to municipalities because of the low interest rates and the technical services provided by PWA.

The types of project possible under the bill are much broader than under previous PWA legislation. Examples given of new types are loans for purchase of rights-of-way if this will provide employment by releasing local money available for construction and such WPA-type projects as reexamination of municipal assessments. Projects might be self-liquidating or might be based on the financial condition of the municipality.

If such a far-reaching program proves unpalatable to the Congress, the

(*Continued on page* 7)

New Locks for Navigation Canals to



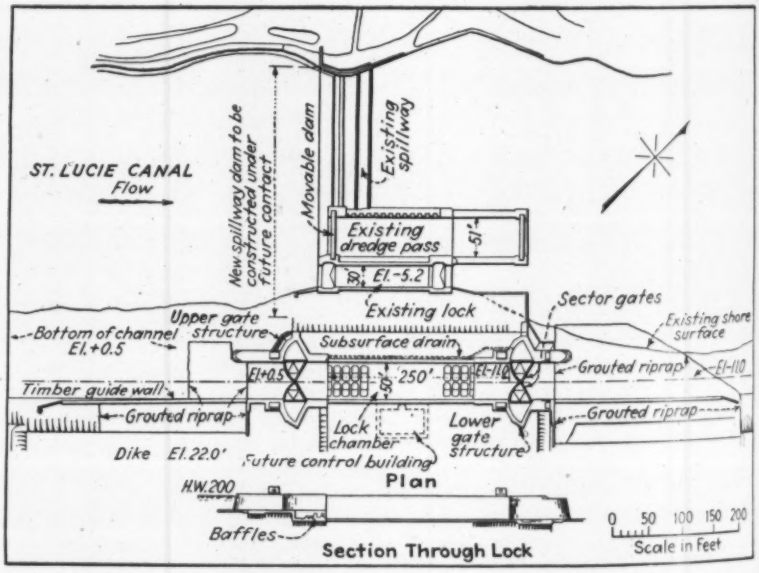
NEW LOCK at Ortona on the Caloosahatchee River west of Lake Okeechobee. The sector gates, on one of which the men are standing, are operated by a motor driven pinion meshing into the rack that shows as a black line near the top of the gate. At the left, not shown in the picture, is a spillway which permits the river to be used to help control levels in Lake Okeechobee by discharging up to 2,500 cfs through the channel. The channel has a minimum width of 80 ft. and a depth of not less than 6 ft. from the lake to Fort Myers, a distance of 56 miles.

CONSTRUCTION is under way on the last of three new locks on the waterway that runs from the Atlantic Ocean north of Miami, Florida, to Lake Okeechobee, through the lake and down the Caloosahatchee River to the Gulf at Fort Myers. The new lock is being built alongside of old Lock No. 2 on the St. Lucie Canal, about 15 miles up the canal from the Atlantic end, and will replace both that lock and another old one at Lake Okeechobee. Old lock No. 2 had a depth over the sill of only 4.7 ft. and lock chamber dimensions of 130x30 ft. The new lock will have a depth over the sill of 11 ft. and a chamber 250x50 ft., thus opening up the lake and its connecting waterways to modern barge traffic. Its maximum lift will be 20 ft. The deepened waterway will provide a channel across Florida having a minimum depth of 10 ft. at extreme low water.

Between the lock and Lake Okeechobee the canal banks will be raised where necessary to bring them well above the higher level, which will be that of the lake. In time of storm, the hurricane gate at the lake will be closed to keep the water in the canal from going above El. 20.

This new lock on the St. Lucie canal and two locks of recent construction on the Caloosahatchee River are similar in design, a design which is notable for its simplicity. The lock chamber walls, except for the gate recesses, are of deep-section steel sheetpiles

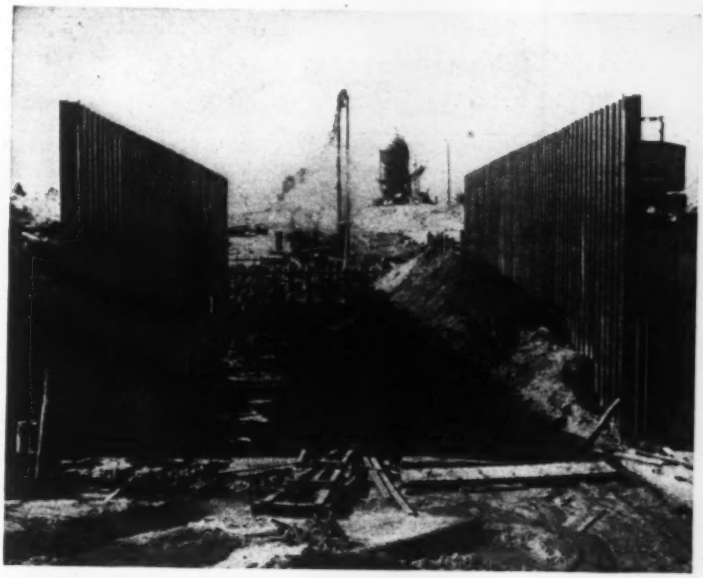
THE SINGLE LOCK that is to serve the St. Lucie Canal is being built adjoining old Lock No. 2. When the new lock is in operation the old lock and dredge pass will be taken out of service and a new spillway structure of concrete with steel control gates on its crest will be built across the channel. This spillway together with those on the canal to the west of the lake will be used to help maintain levels in the lake at a normal of El. 16.



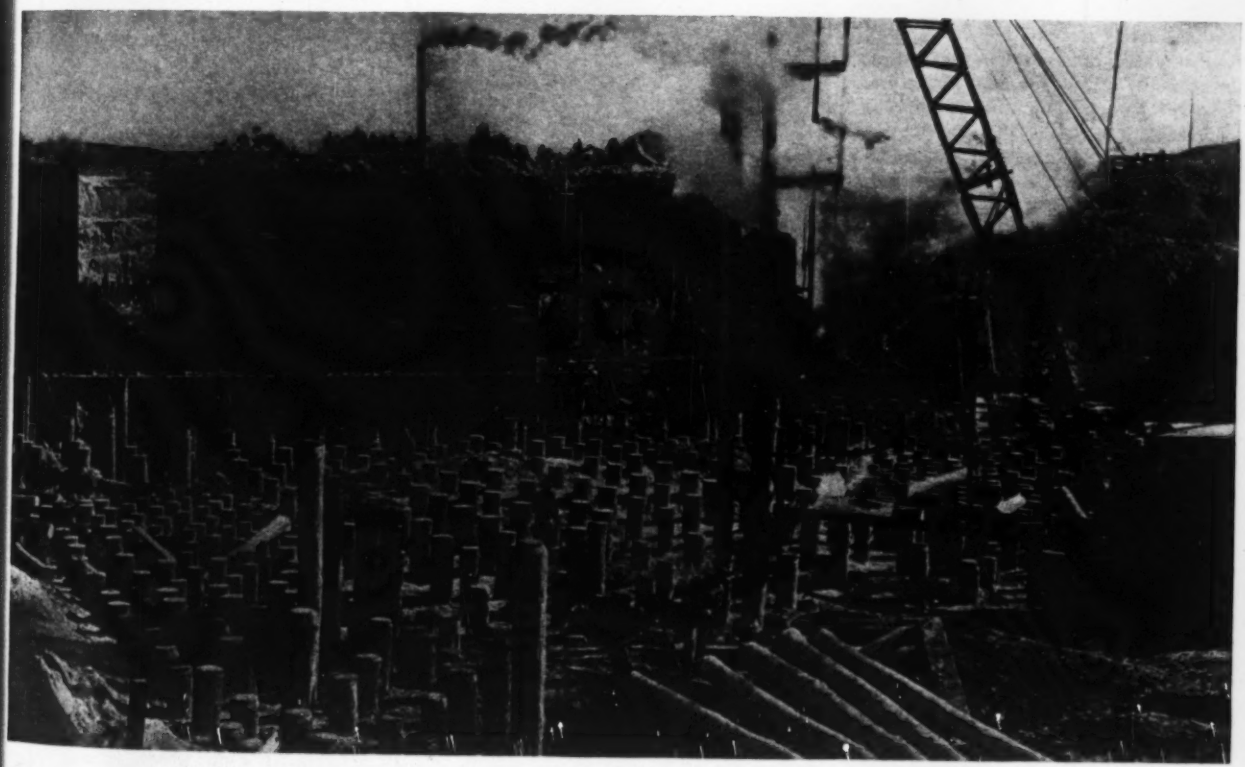
Lake Okeechobee

capped with concrete. The floors, gate recesses and adjoining walls are of concrete. The gates are sector type instead of the conventional mitre gates, a type that makes it possible to use the gates to fill and empty the lock chamber, thus eliminating all water passages in floors and walls and all filling and emptying valves. Steel sheetpiles are used for the cutoffs under the floor and wooden piles carry the gate structure. Fenders are of creosoted timber.

The new locks are being built by the U. S. Engineers under the supervision of Col. Lewis H. Watkins, district engineer, Carawan Nelson, senior engineer in charge of the Lake Okeechobee work, and C. J. Smith, resident engineer on the St. Lucie Canal lock. The lock is being built by Cleary Bros. Construction Co., with Philip Gray as superintendent.



SKILLFUL DRIVING is required to get the sheetpile walls of the lock chamber in proper line. The lock floor is placed before backfilling is done behind the wall to brace the sheetpiles against inward movement. Tiebacks to deadmen far back of the walls hold the upper part against similar movement. The depth of the pile sections and the concrete coping helping to stiffen the wall and make it act as a unit in resisting earth pressure.



DRIVING 25-ft. timber piles for the foundations of the upper gate structure. In driving part of the piles a thin rock stratum was encountered that could not be penetrated by the wood piles. This made it necessary to rig up a steel punch to break holes through the rock for the timber piles. This excavation and the deeper one at the lower end of the lock were kept dry by a well-point system, part of which may be seen in the middle ground.

WASHINGTON HIGHLIGHTS

Special reports by Paul Wooton

FEDERAL aid highway construction would be made subject to the Walsh-Healey Act requiring payment of prevailing wages on government contracts under the terms of a bill on which the House judiciary committee is now holding hearings. At present, the forms of contract approved by the Public Roads Administration require payment of prevailing wages but leave it to the states to determine what wages prevail. The proposed bill, introduced a year ago by Representative Pat Cannon of Florida, would have the effect of turning the determination over to the U.S. Department of Labor; it is supported by several southern labor groups which contend that some states set wages lower than those actually prevailing. At the hearings, the bill was opposed by representatives of the American Association of State Highway Officials and by the Associated General Contractors, who contended that it is unnecessary and would tend to delay road projects.

A BILL introduced this week would authorize the Kings River project in California as a flood control project to be built by the Corps of Engineers. This project is now the subject of competition between the Corps and the Bureau of Reclamation; both agencies submitted reports on it last month (*ENR*, Feb. 22, 1940, p. 285). Gearhart's bill would put the two agencies on an equal footing, since the work is already authorized as a reclamation project. In addition to the inter-departmental fight, the unclear division of authority between the two agencies has also brought about a dispute among the local interests. One group—the Kings River Water and Power Association—favors Reclamation, while the Kings River Water Association wants the Army to build. Chief difference would be that Reclamation will put in 15,000 kw of power and operate the project itself. Army would omit power and turn the project over to the local people for operation. Cost to the water users would be about the same.

CONSTRUCTION of airports, or at least the landing field area, would be recognized as even more of a federal responsibility than highways if a bill introduced by Senator McCarran should pass. The bill would authorize appropriation of $125,000,000 for the improvement of airports—not necessarily to be appropriated in any one year. Even if the bill passes it is, of course, unlikely that very much money would be appropriated this year. No local matching of funds would be required, the federal government bearing the full cost of the landing area and leaving it to the locality to provide buildings. Although not an administration measure, the bill follows the recommendations of the Civil Aeronautics Authority and is given, by its proponents, a fair chance of passage. Money appropriated would be distributed by CAA to the states in accordance with a formula giving equal weight to population, airway mileage, and area. The money, however, would not be turned over to the states in a lump sum but would be allocated to specific CAA-approved projects.

• • •

F. L. Cranford Dies; New York Subway Builder

Frederick L. Cranford, 71, subway contractor of Brooklyn, N. Y., and president of Frederick L. Cranford, Inc., died Mar. 29 in Brooklyn, N. Y. Cranford graduated from Brooklyn Polytechnic Institute. In 1910 he organized the Cranford Co., becoming president. During the past 20 years his firm has been prominently connected with the construction of rapid transit subways in New York City, Cranford being in charge of construction of the first Brooklyn subway. During the World War he served as assistant director of the United States nitrate plants, being in charge of important construction at Muscle Shoals, Cincinnati and Toledo. He was president in 1918 and 1919 of the General Contractors' Association of New York, and during recent years took an active part in civic affairs.

Harris & Ewing Photo

F. L. CRANFORD

Road Engineers Study Public Relations

New York state highway engineers hold annual meeting in Rochester

In a diversified two day program stressing better public relations and technical aspects of road construction the Association of New York State Highway Engineers held its fifth annual convention at Rochester, March 28 and 29, under direction of Geo. W. Ryan of Rochester, state president. More than 500 of the association's 1,000 members were told of construction trends and of the necessity for viewing road design from the user's angle, and received word from Washington that New York's highways will receive about $10,625,000 of $238,000,000 federal aid money under provisions of the House Roads Committee recommendation now nearly ready for submission to Congress.

E. C. Lawton, assistant commissioner of highways since 1931 and recently appointed district engineer of the Rochester area, stressed the fact that too many people take our road system for granted and pointed out that the 10 million dollars annually available for maintenance could not be expected to prevent obsolescence and depreciation of the road system. He recommended rebuilding of 500 miles per year of the 11,000 miles of state roads.

Emphasizing driver's viewpoint

Emphasizing the attention given the driver's viewpoint, Robert C. Georger, engineer of highway transport, stated that the state now has one man in each district to study traffic conditions and necessary signs and markers. Robert E. Harper, director of public relations, American Road Builders Association, Washington, D. C., recommended selling the public on "Pride of Ownership" in its road system and suggested a paid advertising campaign such as that of the railroads to convince road owners that they should put their property in first class operating condition by replacing inadequate roads, many of them built more than 15 years ago.

E. W. Wendell, assistant chief engineer, New York State department of public works, detailed means of reducing troubles with bridge foundations, stating that the securing of more reliable and comprehensive data on subsurface material prior to design will materially reduce costs and field difficulties. Since much of the cost of short span bridges is for the foundation Wendell advocated dry samples to supplement wash boring tests and de-

cried the use of drive rods as often giving misleading information.

Herman Brumm, district engineer at Hornell, advocated giving new men experience in all branches of highway work as one means of streamlining their thinking and making every employee a potential commissioner of highways. Joseph E. Myers, senior laboratory engineer, explained the origin, use and advantages of the various bituminous materials for highway construction.

Illustrating close relation to the public L. R. Barnes, Wayne County highway superintendent, told the meeting that the county superintendents all over the state received the blame for most troubles with the highway system, though they must spread their available funds over 72,000 of the 83,000 miles of state, town, and local roads. Barnes explained that the county has charge of all snow removal which this year will cost $75 to $90 per mile in his county.

James J. Barrett, presiding judge of the New York State Court of Claims, talking on "Contractural Relations" advised more careful reading of contract clauses, by both engineers and contractors, especially those contained in the invitation and instruction to bidders. He explained that the contractor is sometimes entitled to added compensation for too exacting performance of details forced by inspectors, but pointed out that all judgments against the state amount to less than ½ of 1 per cent of the budget.

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Works Bills Passed By New York Legislature

When it adjourned on March 31, the New York legislature had to its credit a number of bills that affect construction activities in the State. A resolution permitting use for highway and parkway construction of $60,000,000 of grade crossing elimination bonds (*ENR*, Mar. 28, 1940, p. 423) was ratified during the closing hours of the session. The money would be diverted from funds remaining from a $300,000,000 bond issue authorized by popular vote in 1926 for grade crossing work. Before it is effective the resolution must be approved again next year and then submitted to the voters.

The charging of tolls on parkways in Westchester County was authorized as was state acquisition of the privately-owned Bear Mountain Suspension Bridge across the Hudson River. Other important action during the session just closed included: Transfer to New York City's Board of Estimate of the right to increase the fare on the city's unified subway system; passage of a series of housing and slum clearance measures, including revision of the present public housing law, and a measure to encourage private limited dividend companies to embark on housing and slum clearance work; providing for consolidation of the New York City Parkway Authority and the Triborough Bridge Authority; supplementing the New York City Tunnel Authority act by conferring upon it powers similar to those of the Triborough Bridge Authority and enabling it to construct the Brooklyn-Battery tunnel; passing a measure to enable the City of New York to amortize in 20 years the expenditures for constructing hangars at LaGuardia Field.

A bill to authorize establishment of a "yardstick" power plant in New York City was defeated.

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Building Indictments Reach New York's Local No. 3

Investigation of violations of the Sherman anti-trust act in the building industry was brought to a new high last week when a federal grand jury in New York City brought indictments against Local No. 3 of the International Brotherhood of Electrical Workers and a group of contractors' associations. No labor union in the country is more powerful nor has been the center of more charges of every variety than Local No. 3.

The allegations, in general, are substantially the same as those leveled at the union and its officers by a $1,350,000 suit brought by the nation's largest manufacturers of electrical equipment in 1937. It is charged that for several years the defendants have restrained interstate trade in electrical equipment in New York City and have systematically and successfully boycotted equipment wired outside of New York state by factories employing members of other unions. Also, the indictments are the first holding those indicted criminally responsible for the action upon which the civil suits are based.

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Spend-Lend Bill

(Continued from p. 3)

spenders have a second plan to fall back on in a bill introduced some weeks ago by Senator James M. Mead of New York. This bill also appropriates $300,000,000 but without the revolving feature. Projects are limited to hospitals, water and sewage systems, and stream pollution abatement, and the interest rate on loans is set at 2 per cent. Senator Mead himself would rather see the Andrews bill go through, but failing that he will push for his own bill, even with the amount drastically cut.

Senate May Increase Flood Control Fund

A $15,000,000 appropriation for start of Panama Locks recommended

The Congressional economy wave seemed this week to have come to a halt as regards public works. The Senate appropriations subcommittee working on the War Department civil functions bill recommended that the House-approved figure of $70,000,000 for general flood control in fiscal 1941 be increased by $30,000,000. If this increase went through a number of projects would get under way at a substantial rate which would otherwise receive no money during 1940-41. Outstanding among these are the Canton and Hulah reservoirs in Oklahoma and the Coralville reservoir in Iowa, protective works at Parkersburg and Cincinnati, and the Dewey, Delaware, and Dillon reservations on the Ohio River and Santa Fe and San Juan reservations in California.

The Senate subcommittee also recommended that $15,000,000 be appropriated to start construction of the new locks at Panama—a $277,000,000 job. This sum was included in the budget but was thrown out by the House on the ground the locks are not needed now and the plans are not finished.

Two other examples of the same trend occurred last week when the House increased the $230,000,000 budget allocation for the Civilian Conservation Corps to $280,000,000 and the $85,000,000 budgeted for the National Youth Administration to $102,450,000.

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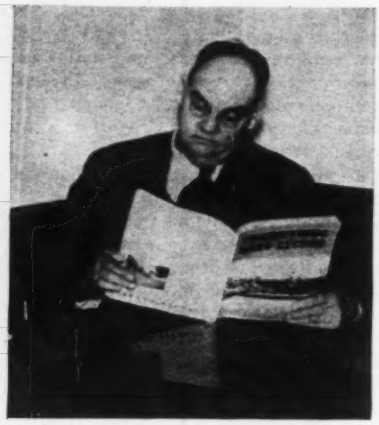
Two Court Decisions Made In Building Inquiry

A judge in the federal district court of St. Louis has sustained demurrers to an indictment charging four officers of the St. Louis carpenters union with conspiracy in restraint of trade. The court ruled that officers of the union were within their rights in calling a strike and boycotting a brewery in a jurisdictional dispute with the machinists union over the installation of certain machinery.

In Washington, D. C., the federal investigators won an important point in the case of the International Brotherhood of Teamsters when a judge of the U. S. District Court ruled that the Clayton act "does not give, and was not intended to give, to labor organizations a blanket exemption from the operation of the anti-trust laws." The Teamsters' group had attempted to prevent members of the Operating Engineers Union from operating concrete mixer trucks.

Erection of superstructure steel for the new $2,300,000 toll highway bridge across the Ohio River at Owensboro, Ky., completed last month, **R. E. Johnson,** chief engineer inspector on the job for PWA, and **Wm. C. Gorman,** resident engineer for Modjeski and Masters, are two happy men. A 22-ft. roadway with a clearance of 47.2 ft. above 1937 high water will be provided by the structure which is a twin-span cantilever.



Although there is lots of work in being engineer for the Charleston County (S. C.) Sanitary and Drainage Commission, **E. Darrell Jervey,** having had those duties since 1925, squeezes in time for reading the *Engineering News-Record.* Following his education at College of Charleston and Clemson, Jervey spent five years with the Atlantic Coast Line R. R. He joined the commission in 1917 as resident engineer and has been with it ever since.

The work in Mississippi of transforming four miles of U. S. Route 90, the main highway leading along the Gulf Coast into New Orleans, into a dual highway is being done under the direction of **J. Walton Thompson** (right), project engineer, Mississippi State Highway Department. **J. W. Kornrumpf** (left) is office engineer, Hattiesburg District, under which the work is being done. Ultimately, 26 mi. of dual road are to be built.

MEN AT WORK

A. D. Noble (left), construction engineer for Aluminum Company of America's new plant at Vancouver, Wash., studies plans for the work with Construction Superintendent **J. B. Kuhns** (center) and Chief Construction Engineer **J. W. Schreiber,** both of the Pittsburgh headquarters. The plant will use Bonneville Dam power.

Marshall Perham Photo

With movie starlets helping, ground breaking ceremonies for the $8,000,000 Sepulveda Dam in California was a real pleasure for **Lieut. Col. Edwin C. Kelton** (left), district engineer of the Los Angeles District, U. S. Engineers, and County Supervisor **Roger Jessup.** Jahn-Bressi-Bevanda Construction Co. is contractor for this 3,000,000 yd. earthfill dam.

MEN AND JOBS

FREDERICK LEE BROWNE has begun his new duties as junior civil engineer in Honolulu with the Hawaiian District, U. S. Engineers. Browne was transferred from the district office at Little Rock, Ark.

GEORGE A. SISSON, formerly with the Huntington, W. Va., office of the U. S. Engineers, is now with the engineering corps as engineer at Honolulu.

WILLIAM H. WHEELER, formerly employed at San Raphael, Calif., is now employed as senior engineer at Midway Island in charge of construction of a combined army and navy air base. Assisting Wheeler is JOHN J. KESTLEY, engineer with the U. S. Engineers and formerly of Visalia, Calif.

CLIFTON J. KALTENBACH, of Pittsburgh, has begun new duties as bridge designer with the Pennsylvania State Highway Department, and ELLSWORTH W. LOSEY, of Troy, Pa., has begun duties as project engineer. HAROLD S. KNIGHT, of Philadelphia, has resigned as project engineer.

ALEX DOW, president of the Detroit Edison Co., has resigned and been succeeded by ALFRED C. MARSHALL, general manager of the company. Dow began his engineering work with the Baltimore & Ohio R. R.

GEORGE SEELEY, city engineer of Tucson, Ariz., was recently named acting city manager by the city council.

SAM DALTON has given up his position as maintenance engineer of the Mississippi State Highway Department, a position he has held for 11 years. A. J. YATES of Philadelphia, Miss., and employed by the department for several years, has taken over Dalton's old work.

CHARLES W. MCKENNON, JR., state planning engineer for the WPA in Texas, has been appointed assistant to the WPA state director, division of operations. McKennon is being succeeded by GLENN H. EGGERT, who will serve as acting state planning engineer.

F. ALPORT, senior assistant engineer for the Dominion Public Works Department of the Nova Scotia district in Canada, has been transferred to the departmental head offices at Ottawa, Ont. He is being succeeded at the Halifax base by A. W. GREGORY, who has been promoted from assistant engineer to senior assistant engineer.

HARRY F. FELTON, who has been engineering consultant to the Buffalo, N. Y., municipal housing authority, has been named technical director with the duties of supervising all matters pertaining to construction for the authority.

BYRON P. HUSTAD, former district supply engineer of the WPA activities at Duluth, has been named acting building inspector for the city of Duluth. His predecessor, ADOLPH ANDERSON, has been forced to take sick leave and is expected to retire.

E. A. RANDALL, contractor of Cedar Falls, Ia., for 37 years, was recently appointed street commissioner of that city.

JAMES W. RICKEY, from 1907 to 1937 chief hydraulic engineer for the Aluminum Co. of America and a resident of Pittsburgh for 30 years, has moved to Washington. Rickey retired last year.

FRED M. VEATCH, since 1923 with the U. S. Geological Survey, has been appointed district engineer at Tacoma, Wash. Veatch first served at Boise, Idaho; from 1932 to 1934 at Washington, D. C., and more recently in charge of the survey's sub-office at St. Louis.

CHARLES H. STEVENS, chief engineer of the department of city transit at Philadelphia, has resigned to engage in the practice of engineering consultant on transportation matters.

M. E. COUNTRYMAN, formerly a director of tests in the laboratories of the Missouri State Highway Commission at Jefferson City, has resigned to join the staff of the U. S. Bureau of Standards, Washington, D. C., as technician to write standards for American exports.

CARL VIALL, engineer with the Akron, Ohio, sewer department, April 1 began new duties as assistant city engineer for the city of Barberton, Ohio.

L. H. ROBINSON, division engineer with the Canadian National R. R. at Halifax, N. S., since 1927, is retiring because of ill health. Robinson began his railway work with the National Transcontinental Ry. in western Ontario, joining the Canadian National in 1914 as assistant engineer at the Atlantic regional base, Moncton, N. B. Robinson is being succeeded by ALEXANDER SCOTT, who has been division engineer at Charlottetown, P.E.I. Scott will be succeeded at Charlottetown by F. S. WILKINS, who is being transferred from Halifax where he has been assistant to Robinson.

ARTHUR W. DEAN, who retired as chief engineer of the metropolitan planning board for Boston in March after 3½ years of service in that capacity, has been appointed chairman of the board to succeed the late JAMES D. HENDERSON. Dean was formerly chief engineer of the Massachusetts State Highway Commission and of the Massachusetts Department of Public Works, his terms in those offices covering a total of 26 years. Dean is now engaged in private practice in Boston with LEWIS E. MOORE.

E. W. WOODBRIDGE, who has been working for the city of Omaha, Neb., since 1908, has been appointed city engineer for Omaha, and WILLIAM J. PROVAZNIK, employed by the city since 1909, has been made sanitation and sewer engineer.

R. E. HARRIS, formerly with the Bureau of Reclamation at the Denver office as assistant engineer, has begun new duties as engineer in charge of construction of the U. S. Naval flying base at Porto Rico. Harris holds the rank of lieutenant in the Naval Reserve Corps.

T. R. LOUDEN, professor of applied mechanics in the department of civil engineering of the University of Toronto, has been appointed chief of the engineering training school in Montreal for the Royal Canadian Air Force. Loudon, a graduate of the University of Toronto, in recent years has been in charge of the aeronautical work at the Toronto school.

C. V. MAXWELL, JR., has opened offices at Jackson, Miss., under the name of Structural Engineering Service to specialize in reinforced concrete and structural steel work.

T. C. CUNNINGHAM, who has been resident construction engineer with the state board of control of Nebraska to be stationed at Norfolk, Neb., has been transferred to Lincoln to take charge of two buildings under construction at the state penitentiary.

COL. JARVIS J. BAIN, division engineer of the South Atlantic Division in Richmond, Va., has been assigned to review the report on the Caloosahatchee and Lake Okeechobee drainage areas in Florida. The field investigation has been assigned to COL. LEWIS H. WATKINS, district engineer at Jacksonville, Fla., who will obtain the views of the local interests.

MEETINGS

MIDWEST POWER CONFERENCE, Palmer House, Chicago, April 9-10.

INTERNATIONAL ACETYLENE ASSOCIATION, annual convention, Milwaukee, Wis., April 10-12.

AMERICAN SOCIETY OF CIVIL ENGINEERS, spring meeting, Kansas City, Mo., April 17-19.

AMERICAN WATER WORKS ASSOCIATION, Kansas City, Missouri, April 21-25.

ASSOCIATED GENERAL CONTRACTORS OF AMERICA, Spring Board Meeting, Schroeder Hotel, Milwaukee, Wis., May 6-9.

REGIONAL AND LOCAL

MICHIGAN ROAD BUILDERS' ASSOCIATION annual meeting, Hotel Statler, Detroit, April 10.

WESTERN ASSOCIATION OF STATE HIGHWAY OFFICIALS, annual convention, Sante Fe, N. M., April 17-20.

ARIZONA SEWAGE AND WATER WORKS ASSOCIATION, annual convention, Tucson, Ariz., April 20-21.

PENNSYLVANIA SOCIETY OF PROFESSIONAL ENGINEERS, Midwest Chapter, Grove City, Pa., April 20.

AMERICAN SOCIETY OF CIVIL ENGINEERS, Texas section, spring meeting, Galveston, April 26-27.

AMERICAN SOCIETY OF CIVIL ENGINEERS, Mid-South Section, annual meeting, Little Rock, Arkansas, April 29-30.

MARYLAND-DELAWARE WATER AND SEWERAGE ASSOCIATION, annual conference, Salisbury, Maryland, May 16-17.

ELECTIONS AND ACTIVITIES

WHEN the Metropolitan Section of the Society of Automotive Engineers, Inc., held a symposium on "Rebuilding Our Cities for Traffic Safety and Efficiency" Mar. 21 in New York City, with about 400 present speakers were: Miller McClintock, director of the Yale Bureau for Street and Traffic Research; Frank T. Sheets, president of the Portland Cement Association, Chicago; Alexander Fraser, president of the Shell Oil Co., Inc., St. Louis, and C. F. Goodrich, chief engineer of the American Bridge Co., Pittsburgh. T. C. Smith, engineer with the American Telephone & Telegraph Co. and chairman of the highway research committee of the society, was in charge.

A STATE-WIDE organization known as the Washington Construction Industries was formed last week at Seattle with E. W. Elliott, highway contractor of Seattle, being chosen president. George Gauntlett, Aberdeen; Harold Woodworth, Tacoma; Edward Templeton, Everett; Roy Bair, Spokane, and C. F. Sanborn, Seattle, were named vice-presidents.

DAVIS K. JACKSON, graduate of the University of Missouri, has been elected president of the Cole County, Mo., engineering alumni association, which embraces the graduates of the engineering school of the University of Missouri, and the Missouri School of Mines & Metallurgy. Roy L. Cummins was elected vice-president and Edson Burch, secretary-treasurer.

W. A. ROTH has been elected president of the Board of Control of the Seattle Construction Council. Other 1940 officers are: E. W. Flohr, vice-president; Don L. Clark, secretary, and E. E. Saberhagen, treasurer.

MURRAY Y. POLING, director of the engineering survey section of the WPA at Washington, was the principal speaker at a recent meeting of the Minneapolis Engineers Club.

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Engineering Conferences

ARKANSAS WATER AND SEWAGE CONFERENCE: University of Arkansas, Fayetteville, Apr. 15-17.

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Short Courses

HIGHWAY: Sponsored by Texas A. & M. College and Texas highway department, College Station, Tex., Apr. 9–11.

WISCONSIN SHORT COURSE for Sewage Plant Operators, University of Wisconsin, Madison, April 15–18.

WELDING ENGINEERING: Ohio State University, Columbus, April 16-18.

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Civil Service Examinations

U. S. GOVERNMENT: Senior inspector of engineering materials, $2600; and inspector of engineering materials, $2000. Application must be on file with the Civil Service Commission at Washington, D. C., by April 8.

NEW OFFICERS OF BOSTON SOCIETY OF CIVIL ENGINEERS

WHEN the Boston Society of Civil Engineers held its 92nd annual meeting and dinner Mar. 20, Frank B. Walker (left) consulting engineer, was elected president to succeed Prof. Gordon M. Fair, Harvard graduate school of engineering. Other new officers shown are: Everett N. Hutchins, secretary; Arthur L. Shaw, vice-president; Charles R. Main, treasurer, and Thomas R. Camp, director. Albert Haertlein, second vice-president, and Samuel M. Ellsworth, another director-elect, are not shown in the illustration above.

The principal speaker of the evening was Henry E. Russell, department of naval architecture, Massachusetts Institute of Technology. At the conclusion of the banquet the Desmond Fitzgerald medal was awarded to Howard A. Gray, of Jackson & Moreland, Boston; the designers section prize to Dean Peabody, Massachusetts Institute of Technology; the Clemens Herschel prizes to Otis D. Fellows, chief engineer of the division of metropolitan planning, and Charles E. Greene, of Cleverdon, Varney & Pike, consulting engineers of Boston.

OBITUARY

ERWIN O. HATHAWAY, 72, Worcester Tech. graduate and 30 years with the U. S. Bureau of Public Roads (now the Public Roads Administration) died last month in Athol, Mass. Hathaway had worked with the Boston & Albany R.R. and the New Hampshire State Highway Department, and as engineer of Nashua, N. H. While with the Bureau of Roads for many years he was stationed at St. Paul.

FRANK D. CEFALU, 52, retired civil engineer of New Orleans, died in that city, late last month. Cefalu, a graduate of Tulane University, for many years was associated with the U. S. Engineers, serving for 15 years at Burwood, La.

DAVIS KINGMAN, 73, former assistant superintendent of the Brockton, Mass. water department, died in that city March 25. He had been connected with the department for 45 years, retiring in 1939.

GUSTAV A. TRETTER, 80, retired vice president of the old Virginia Bridge & Iron Co., died in Roanoke, Va., Mar. 24. Born in Alsace-Lorraine, Tretter came to this country in 1890 to join the Phoenix Bridge Co., Phoenixville, Pa. In 1908 he became erection manager for the Virginia Bridge & Iron Co. Later he was made vice president of engineering and erection.

ARTHUR B. SMITH, 52, of the Santa Cruz Portland Cement Co., died Mar. 25 in Santa Ana, Calif. Smith had worked as chief construction engineer for the Los Angeles County Flood Control District and as chief engineer of the Orange County Flood Control District.

HARRY D. YATES, 69, retired district water department engineer of Washington, D. C., died March 25, in that city. After graduating from Cornell University in 1893, Yates soon joined the Washington water department.

Other recent deaths include: MICHAEL H. CAHILL, 66, former president of the Missouri-Kansas-Texas R.R., Palo Alto, Calif.; WILLIAM A. HANDLEY, 59, chief engineer of the Clarksville, Tenn. water works; LOUIS F. HOEMANN, 53, who was recently appointed county highway engineer for Franklin County, Mo., Washington, Mo.; ANDREW MORTIMER MILLER, 62, contractor of Tacoma, Wash.; JOHN T. DONALDSON, pioneer grading contractor of Seattle, Wash.; PETER JOHNSON, 54, building contractor of Vancouver, Wash.; THOMAS J. CARROLL, 85, retired bridge engineer, Philadelphia; EDWIN E. ALBERT, 49, civil engineer with the Illinois State Department of Conservation, Kankakee, Ill.; WILLIAM ROSE, 85, retired building contractor, Tucson, Ariz.; GEORGE MCGEE, 82, builder, Prescott, Ariz.; JAMES E. MACDONALD, 83, contractor and builder of Montreal, and JAMES A. JAMIESON, 81, consulting engineer of Montreal.

Missouri Road Employees Ordered to Avoid Politics

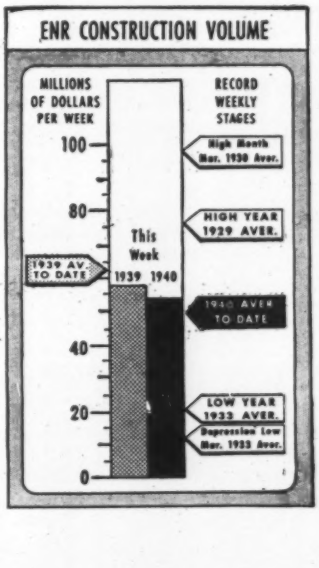
The 1,900 employees of the Missouri State Highway Department have been ordered by Claude C. Earp, chairman of the state highway commission, and by Carl W. Brown, chief engineer, to refrain "from taking any part in any type of politics." The action represents the "desire of Gov. Stark."

CONTRACTS AND CAPITAL

PRIVATE ENGINEERING construction awards for the week are the second highest of the year, and top the preceding week by 60 per cent and the corresponding 1939 week by 92 per cent. The second largest industrial building volume of the year is responsible for the private gains. Public construction tops a week ago but falls 27 per cent below a year ago. Total construction for the week, $55,837,000, exceeds last week by 24 per cent, but the gain in private was offset by a loss in public construction in the 1939 week, with the result, a 3 per cent decrease from last year.

The current week's volume brings 1940 construction to $698,578,000, a level 19 per cent below the 14-week period last year. Private construction for the period, however, is 8 per cent above a year ago.

In the classified construction groups, industrial buildings, sewerage, public buildings, earthwork and drainage, and unclassified construction exceed their respective totals of a week ago. Bridges, industrial buildings, earthwork and drainage, highways, and unclassified top their volumes of a year ago.



New capital for construction purposes for the week totals $84,776,000, an increase of 132 per cent over the volume for the 1939 week. The current week's financing is made up of $71,772,000 in state and municipal bonds, and $13,004,000 in USHA loans for slum-clearance projects. The state and municipal volume includes $53,683,000 in short term notes to finance USHA-sponsored housing projects.

New construction financing for the initial 14 weeks of 1940, $323,119,000, is 40 per cent below the volume for the corresponding 1939 period.

CONTRACTS

(Thousands of dollars)

	Week Ending Apr. 6 1939	Mar. 28 1940	Apr. 4 1940
Federal	$3,339	$5,102	$1,909
State & Municipal	42,588	25,911	31,416
Total public	$45,927	$31,013	$33,325
Total private	11,697	14,005	22,512
TOTALS	$57,624	$45,018	$55,837
Cumulative 1940 (14 weeks)			$698,578
1939 (14 weeks)			$858,726

Note: Minimum size projects included are: Waterworks and waterways projects, $15,000; other public works, $25,000; industrial building, $40,000; other buildings, $150,000.

NEW PRODUCTIVE CAPITAL

	Cumulative 1939 14 Wks.	1940 14 Wks.
NON-FEDERAL	$269,035	$323,119
Corp. securities	42,132	37,813
State & Mun.	147,736	211,064
R.E.A. loans	22,211	.....
U.S.H.A. loans	56,890	73,551
R.F.C. loans	66	691
FEDERAL	$273,000	.....
TOTAL CAPITAL	$542,535	$323,119

FHA MORTGAGES

	Week Ending Apr. 1 1939	Mar. 23 1940	Mar. 30 1940
Selected for appraisal	$29,458	$26,167	$29,915*
Cumulative 1940 (13 weeks)			$269,250*
1939 (13 weeks)			$285,346

* Subject to revision.

ENR INDEX NUMBERS

Index Base = 100		1913	1926
Construction Cost	Mar., '40	238.29	114.55
Building Cost	Mar., '40	201.47	108.91
Volume	Feb., '40	196	86

CONTRACT UNIT PRICES

What contractors are bidding on different kinds of construction work

NIMROD DAM, ARKANSAS

OWNER: U. S. Engineer Office, Little Rock, Ark., Lt. Col. S. L. Scott, district engineer.

PROJECT: Construction of Nimrod Dam, concrete gravity-type structure, for flood control. Located on Fourche la Fave River in Perry County, Arkansas, about 60 miles above its confluence with Arkansas River, 15 miles southeast of Danville, 10 miles south of Ola, and 4 miles west of Nimrod, Ark. Involves diversion and care of river, excavation, foundation preparation, drilling and pressure grouting, concrete masonry for structures, drainage system, backfill and sodding, operating houses, power and lighting system, installation of equipment furnished by government, and other items necessary for completion.

CONDITIONS: Contractor to furnish all materials except cement and equipment (tractor gate, bulkhead gate, slide gates, oil pumps, motors, oil, conduit lining, 60-in. horizontal cylindrical valves and operating equipment, stand-by units, traveling hoist, penstocks and supporting framework, and radial gate anchorages and seals). Project to be completed in 700 days. Railroad runs through Ola, about 10 miles from dam site. Highways also available. Wage rates stipulated are: skilled, $1.00 to $1.50 per hr.; semi-skilled, 40 to 75c. per hr.; and common, 30c. per hr.

BIDS: Twenty-two bids were opened February 27, 1940, ranging from the contract low of $1,100,689 to $1,957,483. Engineer's estimate, $1,014,544.

LOW BIDDERS:

1. Russ Mitchell, Inc., and Brown & Root, Houston, Tex. (contract) $1,100,689
2. United Construction Co., Winona, Minn..... 1,147,888
3. The Massman Constr. Co., Kansas City, Mo.. 1,188,530

Item	Quan.	Unit Prices (1)	(2)	(3)
1. Care and diversion of river	L. S.	$56,650.00	$11,658.35	$50,000.00
2. Clearing site	25 ac.	145.00	200.00	300.00
3. Excavation, common	49,000 c. y.	.35	2.00	.50
4. Excavation, rock	35,000 c. y.	.95	2.00	2.50
5. Foundation preparation	885 sq.*	23.00	5.00	8.00
6. Excav., rock in trenches	200 c. y.	6.00	6.90	7.50
7. Line drilling	20,000 s. f.	.35	.83	1.00
8. Protect. trtmt. for shale	16 sq.*	10.00	3.34	10.00
9. Percussion drilling, 2½-in. hole	2,300 l. f.	.45	.52	.50
10. Core drilling, 3-in. holes	15,500 l. f.	3.50	2.35	2.50
11. Core drilling, 8-in. holes	100 l. f.	7.00	5.00	20.00
12. Pressure grouting	22,000 c. f.	1.00	.50	1.00
13. Backfill, random	32,000 c. y.	.30	.35	.25
14. Backfill, dumped rock	3,000 c. y.	.60	1.00	2.00
15. Backfill, sand	1,000 c. y.	3.00	2.50	1.80
16. Crushed rock	3,000 c. y.	2.65	1.75	2.50
17. Dumped riprap	700 c. y.	1.20	1.00	3.00
18. Derrick stone	700 c. y.	1.50	1.10	5.00
19. Topsoil	1,200 c. y.	1.60	.75	.90
20. Sodding	350 sq.*	1.00	2.00	2.00
21. Unload, haul, store cement	117,000 bbl.	.17	.17	.30
22. Class A concrete	1,000 c. y.	17.00	23.73	25.00
23. Class B concrete	102,500 c. y.	5.85	6.05	6.15
24. Operating houses — mono. 8 and 14	L. S.	15,000.00	15,000.00	25,000.00
25. Reinforcing steel	1,137,000 lb.	.0375	.05	.05
26. Miscellaneous metal	85,000 lb.	.17	.17	.10
27. Safety treads	2,300 l. f.	.65	.40	.50
28. Iron castings	20,000 lb.	.16	.19	.15
29. Brass and bronze	1,600 lb.	.85	1.00	1.00
30. Copper water stops	17,000 lb.	.60	.50	.50
31. Gantry crane rail, fittings	40,100 lb.	.07	.20	.08
32. Trash racks	L. S.	12,000.00	8,000.00	7,000.00
33. Oil pressure piping, oil tank, gages, valves, etc., and install pumps and motors; place oil	L. S.	6,000.00	5,000.00	6,000.00
34. Autom. sump pump; disch. piping	L. S.	600.00	868.00	1,200.00
35. Water system	L. S.	3,000.00	2,000.00	2,500.00
36. Piping, valves, etc., and install stand-by unit	L. S.	700.00	705.00	800.00
37. Plumbing system	L. S.	1,000.00	483.00	1,000.00
38. Electr. conduit and fittings	39,000 lb.	.43	.26	.35
39. Power and lighting system	L. S.	17,500.00	13,000.00	15,000.00
40. Tile gages	130 l. f.	4.25	5.00	7.50
41. Creosoted timber, #1 common	8 Mbm	185.00	182.00	120.00
42. 36-in. galv. corr. metal pipe	60 l. f.	11.00	8.00	8.00
43. 18-in. semi-circ. galv. corr. met. pipe	800 l. f.	3.20	2.00	4.00
44. 12-in. blk. steel pipe, fittings	600 lb.	.10	.20	.10
45. 10-in. blk. steel pipe, fittings	6,000 lb.	.10	.20	.10
46. 8-in. blk. steel pipe, fittings	28,000 lb.	.10	.20	.10
47. 6-in. blk. steel pipe, fittings	500 lb.	.10	.20	.10
48. 3½-in. blk. steel pipe, fittings	16,500 lb.	.10	.20	.12
49. 1½-in. galv. steel pipe, fittings	350 lb.	.20	.51	.10
50. 8-in. Cl. D c.i. pipe, fit., flanged	4,600 lb.	.12	.11	.12
51. 8-in. std. c.i. pipe, fit., bell and spigot	22,000 lb.	.12	.11	.10
52. 6-in. c.i. pipe, fit., flanged	1,600 lb.	.12	.13	.10
53. 4-in. Cl. D c.i. pipe, fit., flanged	1,600 lb.	.12	.30	.10
54. 4-in. gate valves, iron body, brass mounted, std	3 ea.	30.00	43.00	50.00
55. 3-in. galv. handrail and fittings	10,500 lb.	.45	.34	.20
56. 1½-in. galv. handrail and fittings	3,500 lb.	.45	.45	.25
57. Install slide gates, frames, acces	515,000 lb.	.023	.02	.02
58. Inst. tractor gate, frames, guides, etc	150,000 lb.	.023	.04	.03
59. Inst. bulkhead gate, frames, guides, etc	22,000 lb.	.023	.04	.04
60. Inst. 60-in. horiz. cyl. valves, etc	L. S.	1,500.00	1,227.55	1,500.00
61. Inst. 5-ft. conduit linings	176,000 lb.	.03	.02	.04
62. Inst. 15-ft. penstocks and acces	142,000 lb.	.03	.01	.05
63. Inst. radial gate embedded metal	28,000 lb.	.03	.06	.04
64. Inst. electr. traveling hoist	L. S.	700.00	834.00	500.00

* 100 square feet.

FLOOD WALL, OHIO

OWNER: U. S. Engineer Office, Post Office and Court House Bldg., Cincinnati, Ohio. Major Fred T. Bass, district engineer.

PROJECT: Constructing reinforced concrete flood wall and appurtenant structures, south unit, for protection of low lying portions of city of Ironton, Ohio, against Ohio River floods and high water. Wall approximately 3,175 ft. long; averages 15 ft. high. Involves construction of manholes, gate abutments and sills, gates and gate storage houses.

CONDITIONS: Contractor to furnish all materials except cement, and complete work in 225 calendar days. Rail, highway and water transportation facilities available. City of Ironton furnishes borrow pit satisfactory as source of material for backfilling operations. Wages specified are: skilled labor, 60c. to $1.25 per hr.; semi-skilled, 60 to 80c. per hr.; and common labor, 50 to 55c. per hr.

BIDS: Thirty-three bids were opened February 9, 1940, ranging from the contract low of $148,690 to $328,700.

LOW BIDDERS:

1. Walter H. Mueller, Detroit, Mich. (contract) . $148,690
2. Skilken Bros., Columbus, Ohio..... 156,560
3. J. T. McCarthy, Davenport, Iowa..... 156,991

Item	Quan.	Unit Prices (1)	(2)	(3)
1. Clear, grub, remove structures	L. S.	$650.00	$1,575.00	$1,135.00
2. Excavation	19,900 c. y.	.65	.81	.32
3. Struct. backfill, compacted	7,600 c. y.	.73	.33	.43
4. Struct. backfill, uncompacted	4,700 c. y.	.75	.22	.32
5. Pipe, sand, coarse aggr. for drain.	3,030 l. f.	2.00	1.30	2.06
6. Concrete	9,200 c. y.	7.90	8.42	8.60
7. Reinforcing steel	1,131,000 c. y.	.0352	.04125	.042
8. 24-in. cast iron pipe	45 l. f.	10.00	16.15	11.00
9. 12-in. cast iron pipe	35 l. f.	3.20	10.90	6.10
10. 10-in. cast iron pipe	192 l. f.	3.60	3.30	4.77
11. 6-in. cast iron pipe	25 l. f.	2.00	3.00	4.00
12. Clay sewer pipe, 10-in	238 l. f.	.75	.60	1.85
13. 12-in. gate valve	1 ea.	250.00	327.00	215.00
14. 24-in. by 24-in. sluice gate	1 ea.	320.00	548.00	430.00
15. 36-in. by 42-in. sluice gate	1 ea.	650.00	908.00	675.00
16. Gate closure for traffic openings, No. 5	1 ea.	375.00	308.00	665.00
17. As above, for Gate No. 6	1 ea.	375.00	308.00	665.00
18. As above, for Gate No. 7	1 ea.	540.00	364.00	920.00
19. As above, for Gate No. 8	1 ea.	565.00	415.00	920.00
20. As above, for Gate No. 9	1 ea.	540.00	364.00	920.00
21. Doors	3 ea.	125.00	85.50	250.00
22. Handrails	78 l. f.	3.00	2.10	2.15
23. Louvers	9 ea.	15.00	19.50	40.00
24. Miscellaneous metal	12,000 lb.	.12	.0975	.25